Blue Grass Chemical Stockpile Outreach Office

Static Detonation Chamber

A Partnership for Safe Chemical Weapons Destruction

Public Law 99-145 (as amended) directs the Secretary of Defense to destroy the United States stockpile of lethal chemical agents and munitions by the most effective, safe, environmentally acceptable and economic means available. The law specifically directs the development of a chemical weapons destruction program that is safe for the workforce, the public and the environment. Through the Assembled Chemical Weapons Alternatives program, established by Congress in 1996 to demonstrate alternatives to destruction by incineration, neutralization followed by supercritical water oxidation was selected as the technology for use in destroying the Blue Grass chemical weapons stockpile.

The need for a better balance of cost, schedule and performance objectives without compromising safety in developing plans for the Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) has resulted in a re-design of the original facility and the identification of a safe, proven technology that will enhance the plant's efficiency and increase its cost-effectiveness. One such state-of-the-art piece of equipment is the Static Detonation Chamber.

What is a Static Detonation Chamber?

The Static Detonation Chamber being studied for possible use at the BGCAPP is a large, sealed, doubled-walled chamber that uses indirect electrical heat to literally "destroy by cooking" munitions and other explosive and non-explosive items. The chamber is made of high temperature stainless steel and is capable of containing the shock, fragments and gasses of munitions or other materials being thermally treated inside.

A Static Detonation Chamber in Germany used to destroy obsolete chemical and conventional munitions and industrial explosive materials such as air bag initiators

How would the Static Detonation Chamber be used at the BGCAPP?

The Static Detonation Chamber is being separately studied and evaluated for two possible uses: destroying non-contaminated M-55 rocket motors and mustard projectiles. The chamber is also being considered for future use by Blue Grass Army Depot in processing conventional munitions and explosive components that would reduce reliance on the current practice of open-burning and open-detonation.

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A Static Detonation Chamber used to destroy conventional munitions in Taiwan

Has the Static Detonation Chamber proven to be safe?

Initial studies indicate that this type of Static Detonation Chamber has operated safely and successfully at a number of sites around the world, including Germany, Japan, Sweden, Portugal, Spain and Taiwan. Its automated operation would minimize the handling of rocket motors or munitions by BGCAPP workers. Because safety of the workforce and the community is our top priority, the Static Detonation Chamber would not be under consideration for use here if it did not have a top safety record.

What happens to the gasses that are generated by the Static Detonation Chamber?

With an available "hold, test and release" option, the Static Detonation Chamber can be a completely sealed system. Its double-walled construction and three interlocking blast doors provide complete containment within the system of any detonation, fragments and gasses resulting from the thermal process. Its employment of indirect electric heat means that there are no heated gasses produced and mixed with the gasses coming off munitions or other items being treated. Those gasses, called "off-gasses," are removed from the chamber and passed through a pollution abatement system specifically designed for the Static Detonation Chamber and its proposed application at the BGCAPP. The off-gas will meet or exceed strict air emissions standards before being released into the environment. The scrap metal and materials that remain after being heated for more than 15 minutes at 1,000°F will be monitored to ensure that no residual contamination is detected.

How will the community know if the Static Detonation Chamber will be used at the BGCAPP?

Any decision to incorporate the Static Detonation Chamber into the BGCAPP design will require the submission of supplemental information to the National Environmental Policy Act (NEPA) documentation and a modification of our environmental permits. This process alone guarantees a number of opportunities for public participation and input. More importantly, our personal commitment to the community means that we will continue to involve the Kentucky Chemical Demilitarization Citizens' Advisory Commission, the Chemical Destruction Community Advisory Board and other interested community members in this and every other major decision concerning the BGCAPP project.